

Claim Listing

Please enter the following claim listing, which represents the currently pending claims.

1. (currently amended) A method of manipulating cells suspended ~~at an interface between adjacent to a surface of an electrode and in a polarizable liquid medium an electrolyte solution~~, the method comprising the following steps: providing a plurality of cells suspended ~~at an interface between an adjacent to a surface of a light-sensitive electrode and in a polarizable liquid medium an electrolyte solution~~, the electrode being a light-sensitive electrode; generating an electric field ~~at the interface~~; and illuminating the ~~interface electrode~~ with a predetermined light pattern to control the movement of ~~and to manipulate~~ the cells in accordance with the predetermined light pattern and the properties of the electrode.

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97. (newly added) The method of claim 1, further comprising an additional electrode, the additional electrode and the light-sensitive electrode being substantially planar and aligned to one another and separated by a gap, wherein the additional electrode comprises an optically transparent electrode and wherein the suspended cells reside in the gap.

98. (newly added) The method of claim 1 wherein the electric field is generated by applying an AC voltage.

99. (newly added) The method of claim 98 wherein the AC voltage is between 1 and 10V (peak-to-peak), and between 500 Hz and 10 kHz.

100. (newly added) The method of claim 98 further including applying DC potential between the light-sensitive electrode and the additional electrode.

101. (newly added) The method of claim 1, wherein the light-sensitive electrode has a surface or an interior, the surface or interior having been modified to produce spatial modulations in properties of the electrode, said properties affecting the local distribution of the electric field at said interface.

102. (newly added) The method of claim 101 wherein the surface or interior have been modified by spatially modulated oxide growth, surface chemical patterning or surface profiling.

103. (newly added) The method of claim 1, further comprising the step of spatially or temporally varying the light pattern to affect the manipulation and movement of cells.

104. (newly added) The method of claim 1, further comprising the step of varying the

frequency or the voltage of the electric field to affect the manipulation and movement of cells.

105. (newly added) The method of claim 1, in which the plurality of cells comprises more than one type of cells, the method further comprising the step of fractionating one type of cells from another.

106. (newly added) The method of claim 1, further comprising the step of adjusting the electric field and the predetermined light pattern to maintain the cells in a particular configuration following movement and manipulation.

107. (newly added) The method of claim 105, further comprising immobilizing the cells by chemical or physical means.

108. (newly added) The method of claim 106, in which the cells are immobilized on the electrode by chemically linking the cells or physically confining the cells.

109. (newly added) The method of claim 1 wherein the polarizable liquid medium is a mannitol solution.